

What Is Claimed Is:

1. A high frequency oscillator which obtains an oscillation output by combining outputs of two oscillators, the high frequency oscillator comprising:
  - a substrate;
  - first and second amplifiers for oscillation so disposed on a first principal surface of said substrate that their output ends be opposite each other;
  - a first signal line disposed on said first principal surface and configuring a closed oscillation loop by interconnecting an input end and the output end of said first amplifier;
  - a second signal line disposed on said first principal surface and
- 5       configuring a closed oscillation loop by interconnecting an input end and the output end of said second amplifier; and
  - a grounding conductor disposed on a second principal surface of said substrate and configuring a strip line together with each of said signal lines, wherein
- 10      an opening, where said grounding conductor is removed, is bored in said second principal surface and a coplanar line structure is configured by arranging said first and second signal lines close to each other in an area of said opening.
- 15      2. The high frequency oscillator according to Claim 1, wherein the oscillation frequencies of said first and second amplifiers are identical.
- 20      3. The high frequency oscillator according to Claim 2, wherein a combined output line for combining outputs of said closed oscillation loops is so

disposed as to be close to the output ends of said first and second amplifiers.

4. The high frequency oscillator according to Claim 3, wherein a first lead-out line protruding from said first signal line and a second lead-out line protruding from said second signal line are disposed close to said combined output line, and each of said lead-out lines has a protruding length equal to 1/8
- 5 of a wavelength corresponding to said oscillation frequency and is electromagnetically coupled to said combined output line.

5. The high frequency oscillator according to Claim 2, wherein each of lengths from positions of said first and second signal lines to the two ends of said opening in a direction orthogonal to an extending direction of said first and second signal lines in the area of said opening is equal to a quarter of a
- 5 wavelength corresponding to said oscillation frequency.

6. The high frequency oscillator according to Claim 1, further comprising an injection line for injecting a synchronizing signal, wherein said first and second signal lines are connected in common to said injection line.